

US Ser. No. 10/695,966
Amendment, filed Jan. 25, 2007
Dckt A01465

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present patent application:

1. (Currently Amended) A method for reducing the emission of waste oxide gas from a waste destruction process performed in a multi-zone thermal oxidizer which comprises a primary combustion zone and one or more waste destruction zones positioned downstream of the primary combustion zone, the method comprising the steps of:

- a. directing an oxidant stream comprising oxygen, and a combustion fuel stream comprising one or more fuel components which release heat when reacted with the oxidant, to the primary combustion zone of the thermal oxidizer;
- b. combusting the oxygen and fuel components in the primary combustion zone of the thermal oxidizer to produce a hot stream comprising heat and combustion products; and
- c. directing the hot stream to the one or more waste destruction zones;
- d. directing at least a portion of a waste stream comprising waste components and reactive waste components, to the one or more waste destruction zones of the thermal oxidizer, wherein said reactive waste components form radicals upon exposure to high temperatures and said radicals are reducing radicals capable of removing oxygen from waste oxide gases to convert them to inert compounds, and wherein the reactive waste components are selected from the group consisting of aliphatic hydrocarbons, ammonia, acrolein, hydrogen, hydrogen cyanide, carbon monoxide, urea, and aromatics; and
- e. destroying the waste components in the one or more waste destruction zone to produce an emission stream.

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2. (Previously Presented) The method of claim 1 wherein the waste stream comprises at least 0.5 mole% of reactive waste components.
3. (Original) The method of claim 1 further comprising, supplying an aqueous waste stream to the primary combustion zone.
4. (Original) The method of claim 1 further comprising, supplying ancillary waste to the downstream waste destruction zone wherein the ancillary waste is selected from the group consisting of aqueous waste and alternative waste.
5. (Previously Presented) The method of claim 1 wherein at least a portion of the waste stream comprises an industrial process waste stream from an industrial process which produces a product selected from the group consisting of: acrylic acid, methacrylic acid, acrolein, methacrolein, hydrogen cyanide, acrylonitrile, methacrylonitrile, phthalic anhydride, maleic anhydride, and mixtures thereof.

Claims 6-9 (Cancelled).

Claim 10 (Cancelled)

11. (Previously Presented) The method of claim 1 wherein the oxidant stream comprises from 1 to 100% oxygen.
12. (Previously Presented) The method of claim 2 wherein the waste stream comprises up to 99.5 mole% of inert components.
13. (Currently Amended) The method of claim 1 wherein the one or more waste destruction zones comprise at least a primary waste destruction zone downstream of the primary combustion zone, and a secondary waste destruction zone downstream of the primary waste destruction zone, and the step of directing at least a portion of the

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waste stream to the one or more waste destruction zones comprises a feed pattern selected from the group consisting of:

- a. directing all of the waste stream to the primary waste destruction zone;
- b. directing all of the waste stream to the secondary waste destruction zone;
and
- c. separating the waste stream to form a primary waste stream and a supplemental waste stream, directing the primary waste stream to the primary waste destruction zone and the supplemental waste stream to the secondary waste destruction zone.

14. (Previously Presented) The method of claim 1 wherein at least a portion of the waste stream is directed to the primary combustion zone and a remaining portion of the waste stream is directed to at least one of the one or more waste destruction zones.

15. (Previously Presented) The method of claim 1 wherein the multi-zone thermal oxidizer comprises a plurality of waste destruction zones, and wherein at least a portion of the waste stream is directed to the primary combustion zone and a remaining portion of the waste stream is directed to at least one of the plurality of waste destruction zones.

16. (Previously Presented) The method of claim 1 wherein the waste stream is formed, prior to being directed to any zone, by mixing an industrial process waste stream, which comprises waste components produced by one or more industrial processes and inert components, with a supplemental stream comprising reactive waste components.